What we think of as operational procurement happens between the creation of a purchase order and the delivery of the invoice. This chapter covers the system processes involved with the purchase order, goods receipt, and invoicing.
Chapter 5
Operational Procurement

Operational procurement concerns the day-to-day buying activities of a business or government entity. Much of operational procurement is unplanned or partially planned, low-value, high-volume activity. Operational procurement therefore comprises the procurement activities that keep an organization running.

Unlike in other procurement activities, which typically include a trained buyer using a tool with some degree of familiarity and training, many organizations permit any employee to create a requisition for an operational or indirect procurement item. This poses a challenge for the solution used, as the baseline training for the solution and familiarity with any process may be next to nil for the average user in operational procurement. Previous versions of SAP ERP, such as SAP ERP 6.0, supported operational procurement by leveraging existing document frameworks designed for heavy-duty buying activities between suppliers and the firm or government entity.

From the onset, this mismatch of a complex solution and simple user was sure to cause issues in operational procurement. There is nothing inherently wrong with having large amounts of detail in a Purchase Order or Requisitioning screen in a system used for heavy-duty industrial manufacturing. Often, this level of functionality is quite necessary—say, for Electronic Data Interchange (EDI) activities with a supplier or for complex items vital to the production process. Having complex, professional, buyer- and engineer-centric screens makes purchasing for the casual user a bit more cumbersome than optimal. Many of these screens can make it downright frustrating for an untrained user trying to order mundane supply items like pens and paper, as each field can issue a hard-to-understand warning message or hard-stop error, incorrect entries quickly negate the entire document’s validity, and multiple tabs and steps have to be completed—all this for a simple order that costs perhaps $10 dollars. Using SAP ERP for this kind of procurement often is akin to having to use an airplane cockpit and all of its controls to steer a bicycle.
5 Operational Procurement

5.1 Overview

One approach to operational procurement is to take the process out of ERP systems. Cloud solutions such as SAP Ariba Buying and on-premise solutions such as SAP Supplier Relationship Management (SAP SRM) are examples of this approach. This allows a system to mask all of the complexity and the procurement options that aren’t applicable to a simple transaction, distilling for the user what is necessary to find items and create orders with the fewest clicks, entries, and headaches possible. This approach, especially in cloud-based approaches, works very well for simplifying the UX and allowing even the most casual and untrained user to find what he’s looking for and order it, without calls to the helpdesk or frustration. However, early in the transaction, these operational procurement systems are already dependent upon ERP, even if their UIs appear independent.

First, calls need to be made from the procurement system back to the “mothership” ERP system to find out if the user is purchasing via a correct financial object in the FI/CO system. Finance has to support a number of functions in SAP ERP, so it can’t be moved into a standalone procurement solution without bringing all the other dependent modules with it or leading to an expensive, “interface spaghetti” scenario. The users themselves need to be managed in real time; terminated employees can’t be allowed to continue to make purchases on behalf of a company or government entity. For this, the purchasing system requires real-time updates from the HR system or a user-management system that deactivates users throughout the landscape immediately when they leave the company or government entity.

There also is the question of efficiency and avoiding unnecessary stock to consider. What if the user is looking for an item already held and available in company or government entity warehouse? If the operational procurement system and/or buyer cannot check this prior to assigning a source of supply and issuing a PO, excess stock may be purchased instead of consuming existing stock. Excess stock causes waste, inefficiency, and, most alarmingly for a business, expense. If checking for existing stock needs to be a manual process step in a procurement system, buyers are focusing on performing manual tasks that could be automated in an integrated system, rather than strategic procurement activities that generate exponentially more savings and value for the firm or government entity. These issues pose a conundrum for operational procurement in SAP ERP: running operational procurement directly in

SAP ERP can be quite difficult for casual users and from an IT landscape perspective, but it’s also the ideal place for it in many cases because all of the dependent modules and integration topics are already covered.

The main stumbling block to operational procurement in SAP ERP has always been usability and UI issues, as well as transactional volumes. An ERP system supporting operational procurement needs to be intuitive to use, minimize transaction steps while remaining flexible and capable of handling a diverse set of transactions, support catalog content, and support heavy volumes of low-dollar transactions, all while making the most of ERP’s native integrations with associated modules. Incidentally, these are the driving forces behind SAP S/4HANA Sourcing and Procurement’s embrace of operational procurement as a core SAP ERP process. SAP S/4HANA Sourcing and Procurement supports the operational purchaser across self-service requisitioning, requirement processing, service purchasing and entry, and purchase order collaboration. This process flow is also known as the requisition-to-pay process.

5.2 Requisition-to-Pay Process

Requisitions can be created directly by a user via a self-service procurement process, or from a system/business process occurring in another module in SAP ERP, such as an MRP run in which defined reorder points trigger the creation of a requisition—a bill of materials (BOM)—that requires an additional item be ordered as part of the materials list, or a project systems requirement generated from what’s called a network in SAP Project Systems. A network in SAP Project Systems tells the user what tasks need to be performed in sequence by a certain time. Automated procurement processes typically used in the procurement of items needed in production, known as direct procurement, will be discussed in Chapter 6. The focus in self-service requisitioning is on user-driven requisitioning, which is more typically found in indirect procurement.

As illustrated in Figure 5.1, the requisition is the first document in the procurement chain that eventually leads to a purchase order and/or contract, as well as follow-on documents, such as order confirmations, advanced shipping notifications (ASNs), goods/service receipts (GRs), and invoices (IVs).
There are several item types that can be obtained as part of operational procurement, as we’ll discuss in the next section.

### 5.3 Procurement of Stock, Consumable, and External (Service) Items

There are three main types of procurement conducted in operational procurement: stock, consumables, and external services. All of these types of procurement can be used in other procurement scenarios. Stock procurement is typically used for direct procurement activities, such as the ones discussed in the next chapter, but you can purchase and take into inventory items such as office supplies and equipment that qualify as operational indirect items as well. Consumable items are directly in the wheelhouse of operational procurement. A consumable item is typically an indirect item that is consumed and replenished on an ongoing basis, often by the consumers themselves. Pens, paper, coffee for the office kitchen, and other types of consumables may be ordered by the office manager or directly by an employee who notices that the office needs more of a consumable good. Consumables often do not require a goods receipt or a valued goods receipt used primarily for inventory-management processes and valuations, as these consumable purchases are petty at an individual level. In aggregate, however, consumable purchasing can be quite significant for an organization, and a level of management in the system may thus be desirable, if not a necessity.

External services procurement is the procurement of services to be delivered by individuals or groups who are not employees of the organization, but only involved to deliver that particular scope of work. These services can support the direct side of the equation, but they can also comprise cleaning or gardening services for the grounds of the office, for example, making these external services indirect. Although an office manager may set up the purchasing documentation for external services relating to the office, a project manager may need to directly set up the purchasing framework for consultants being hired to support a project.

The defining feature for operational procurement and for stock, consumable, and external procurement is that these types of procurement do not necessarily require a trained, dedicated buyer to initiate the requisition. The demand and consequent requesting in the system may come from the employee directly. When it does, this type of procurement is squarely in the category of operational procurement, and it follows that the solution provided in system to support this activity must support its untrained and barely trained users in a way that makes self-service procurement possible and even enjoyable. This is the goal of SAP S/4HANA with self-service procurement.

### 5.4 Self-Service Procurement

In SAP S/4HANA Sourcing and Procurement, users can create a requisition and identify appropriate sources of supply via a consumer-grade UX; that is, a UX that users would find in their personal online shopping experiences (see Figure 5.2). Self-Service Requisitioning is completely supported with a UI built on SAP Fiori, with tiles and step simplification to enable a completely different UX from that found in traditional ERP requisitioning.

**Requisitions** are internal documents a corporation or government entity uses to lay claim to a service or material—essentially, a formalized request for a supply or service. Requisitions can be created with or without a source of supply and with or without a material master or service master number.

There are a number of key innovations around simplification and speed for Self-Service Procurement in SAP S/4HANA. Most importantly, one-click ordering is the...
predominant concept in this area, as personified in the new UI. The content search and dynamic filtering is built on SAP S/4HANA, allowing for vast performance improvements and usability over traditional ERP-based requisitioning. Catalog content is accessed like a punch-out catalog in the SAP Ariba Catalog area and/or loaded directly into SAP S/4HANA in the case of internally built catalogs. Loading and indexing catalogs in SAP S/4HANA allows for cross-catalog search directly in SAP S/4HANA.

5.4.1 Creating a Requisition or Shopping Cart in SAP S/4HANA

In Figure 5.3, the screen is simplified down to the bare essentials for creating a requisition. Either a user elects to use a catalog to find the item or, if the item isn’t found in a catalog, the user can describe it. Note that the SAP Ariba Catalog solution can be embedded in this view, creating a seamless catalog experience even when the user is punching out to a catalog area.

To create a requisition for an operational procurement item or service, a user logs into the Purchase Requisition app and types in the item in the search bar, as shown in Figure 5.4. If the desired item doesn’t appear in the search results, the user can search using a different term or create a descriptive item by selecting the Create Own Item option (see Figure 5.4).

Once the user has selected or described an item, she is ready to order the items in the shopping cart (see Figure 5.5).

Launch an External Catalog

Figure 5.3 SAP S/4HANA Sourcing and Procurement: Create Requisition App

Figure 5.4 Selecting Item in Create Purchase Requisition

Figure 5.5 Shopping Cart Ready to Order in Purchase Requisition Create App
After clicking **Order**, the user receives confirmation and a requisition number (see Figure 5.6).

![Figure 5.6 Purchase Requisition Number Created](image)

**Note**
This requisition creation process went from a multistep, data-entry-intense process in SAP ERP to a couple of steps, with one data-entry step to define the item required and pointing to and clicking the corresponding item in the catalog—in essence achieving or exceeding parity with a consumer shopping experience online (here, the user didn’t have to enter credit card information or define a shipping address).

### 5.4.2 Confirmation and Return Delivery

After a PO has been issued to the supplier and the goods/services have been delivered to the customer, a goods and/or services receipt often is required by the customer to process an invoice. During the goods receipt process, the customer verifies whether the correct goods/services have been delivered and whether the right quantity has been delivered, and also defines the good for inventory management if flagging, such as perishable/nonperishable, is required.

To create a goods receipt entry that can be used for a three-way match with the PO and invoice documents (see Figure 5.7), you need to reference the PO number on your goods receipt. There are two key apps in SAP S/4HANA to support goods receipts:

1. Post Goods Receipt for Purchase Order
2. Post Goods Movement

![Figure 5.7 Create Goods Receipt](image)

Goods receipts can be created in the Post Goods Receipt for Purchase Order app by searching for the PO, selecting the goods/quantity received, defining the receipt type, and then clicking **Post**, as shown in Figure 5.8.

![Figure 5.8 Post Goods Receipt Using SAP S/4HANA App](image)
Multiple goods receipts can be entered against a single PO or even a single line item. This is typically done when items are being distributed among several plants and storage locations, or items are being received into different classifications, such as in a quarantine or quality review status.

The movement type is a three-character key in SAP used to differentiate between goods movements, including transfer orders and issues between plants and storage locations. The most prevalent movement type is 101, which is a basic goods receipt for purchase order. Movement types thus play an important role in inventory management and automatic account determination/posting. Goods receipts can be both valuated, generating accounting documents and postings, or nonvaluated, merely confirming that an item was received but not generating accounting documents/postings.

Valuated goods receipts are particularly relevant when purchasing assets, when depreciation runs in asset management sometimes can start the minute the good is taken into receipt. Using a valuated goods receipt approach allows for finance to realize the tax savings of depreciation in a more efficient manner, rather than waiting for the invoice posting to occur. Valuation defaults are often set at the vendor master level or for the PO type. If valuation is required—that is, if the PO is flagged for valuated goods receipt—then the goods receipt will generate an accounting document in addition to the material document (see Figure 5.9).

Creation of a goods receipt can initiate the following documents and updates in SAP ERP:

- **Update of PO and PO history**
  The goods receipt updates both the open quantities in the PO and the PO History tab with a Goods Receipt Document link.

- **Update of inventory and value**
  The goods receipt updates the stock quantities in Inventory Management areas, as well as any changes in valuation of said stock.

- **Update of stock and consumption accounts**
  The goods receipt triggers accounting updates.

- **Notification of goods receipt to the supplier**
  You can send an (optional) notification to the person ordering and/or the supplier upon goods receipt via the system.

- **Printing of a goods receipt slip**
  In some paper-oriented receiving operations, a further hard copy of the receipt is required.

- **Transfer requirement sent to warehouse management**
  If warehouse management is active, a goods receipt can also trigger a transfer request to move the newly received item into the warehouse.

- **Quality inspection**
  If the item received first needs to be inspected, prior to being placed into general availability stock, a goods receipt can trigger these activities in Quality Management (QM).

Return delivery can also be initiated directly in the Return Delivery app (see Figure 5.10). This app in particular has been enhanced as of SAP S/4HANA 1610.

Self-service requisitioning in SAP S/4HANA provides an integrated UX for requesting, reviewing, receiving, and returning. If you lose the session during the transaction, a draft of the document you were working on when you lost connectivity is created automatically and retrieved automatically upon return. This proactive connectivity extends to other parts of the process in SAP S/4HANA as well. Instead of having to click the Refresh button on a list or grouping, SAP S/4HANA updates these dynamically.
5.4.3 Purchase Order Collaboration

Upon creation of a PO, the PO can be issued to a supplier via the Ariba Network and/or via EDI, email, fax, or other transmission methods supported in SAP S/4HANA. Suppliers often connect to the Ariba Network and use this as an integration layer to receive their purchase orders directly into their systems via their EDI linkage, rather than setting up a point-to-point EDI integration going out to the network to process these orders.

As mentioned in Chapter 1, PO collaboration is not something that can be done adequately in SAP ERP or even in SAP S/4HANA alone; an interaction between supplier and buyer needs to take place, and documents need to be exchanged without compromising the security of the core SAP ERP environment. Point-to-point solutions such as supplier self-services suffer from the maintenance aspects and training/change management required for the supplier base. The point-to-point model doesn’t scale well, as each additional supplier represents additional calls and emails to the help desk, all of which are the onus of the buyer’s organization. And yet, for a point-to-point solution to be economical, it has to scale to encompass many suppliers and high spending. This is where a network like the Ariba Network can take over the heavy lifting aspects of infrastructure, supplier onboarding, and support and allow the buyer to focus on the value-added activities within collaboration.

The Ariba Network is the main approach for true PO collaboration, as it allows the supplier to receive and work with the purchase order, confirming items or proposing changes to delivery dates and potential quantities. SAP S/4HANA provides out-of-the-box integration with the Ariba Network. The Ariba Network handles well over 1 trillion dollars in annual transactions among millions of participants. Invoicing will be covered in a later chapter, but for now, note that PO collaboration is covered with this integration to the Ariba Network, as well covered via traditional processes of document exchange such as email, fax, and EDI.

Note

SAP S/4HANA Cloud offers best practices for integration with the Ariba Network, which differs slightly from the on-premise standard integration and include more documents from the invoice/payment part of the process. There are also further best practice integration points with SAP Ariba Sourcing, which will be detailed further in Chapter 9.

This best practice approach for SAP S/4HANA Cloud integrations also includes invoice documents from SAP Fieldglass.

5.4.4 Shopping Cart versus Requisition-to-Pay and Migrating SAP SRM Shopping Carts

Shopping carts are essentially requisitions with a more user-friendly name and, hopefully, UI. The term was first used at SAP for SAP SRM, but it’s now used in SAP S/4HANA requisitions, as outlined earlier. Any requisition processes that begin to rival a commercial UX in their simplicity and usability will typically take the label shopping cart processes.
5.4.5 Migrating SAP SRM Shopping Carts to SAP S/4HANA

We reviewed the shopping cart/requisitioning process in SAP S/4HANA at the beginning of this chapter, but there’s also a shopping cart concept in SAP SRM. Much of SAP SRM’s shopping cart functionality and simplification has been replicated in SAP S/4HANA. Many SAP customers are evaluating their SAP SRM implementations during the move to SAP S/4HANA and finding this to be an opportune time to migrate from SAP SRM, given the new, streamlined functionality available in the SAP S/4HANA core and in the SAP Cloud solutions available today. This section covers the conversion process at a high level from SAP SRM shopping carts to SAP S/4HANA.

As discussed in Chapter 2, SRM functionality has been built out substantially in SAP S/4HANA Sourcing and Procurement for the self-service procurement scenario. In addition, running SAP SRM in the one-client scenario embedded with SAP S/4HANA is not an option like it was with SAP ERP. In a one-client SAP SRM scenario, your options for moving to SAP S/4HANA are to reimplement SAP SRM and connect it to SAP S/4HANA either in the classic or extended classic scenario (see Table 5.1). You can also reimplement in a standalone scenario, but this isn’t typical if you already have finance running in SAP ERP.

<table>
<thead>
<tr>
<th>SAP SRM Deployment Option</th>
<th>Classic</th>
<th>Extended Classic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple SAP backends</td>
<td>Migration optional (restrictions apply)</td>
<td>Migration optional (restrictions apply)</td>
</tr>
<tr>
<td>Single SAP ERP backend</td>
<td>Migration optional</td>
<td>Migration optional (restrictions apply)</td>
</tr>
<tr>
<td>One client</td>
<td>Migration (or reimplementation on different SAP SRM scenario, such as classic) mandatory</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Table 5.1 SAP SRM Deployment Scenarios and SAP S/4HANA

The other option is to use this SAP S/4HANA transition to migrate your SAP SRM users and open documents into SAP S/4HANA. SAP provides informational SAP Note 225146 for this approach.

The first step is to complete your configuration and the setup of the self-service procurement scenario in SAP S/4HANA Sourcing and Procurement (as we’ll discuss in Section 5.6). Prior to shutting down your SRM environment, you would then run Report BBP_SC_MIGRATE_TO_PR in SAP SRM. You can migrate shopping carts prior to your system conversion to SAP S/4HANA, during the conversion, or before and during the conversion. However, the shopping cart migration report can be run multiple times as needed, so long as SAP SRM is still up and running. This means that for a one-client SAP SRM scenario with SAP ERP, the report has to run before the conversion, because SAP SRM won’t be available once the conversion begins. You can define which migration scenario you’ll use during system conversion from SAP ERP/SAP SRM to SAP S/4HANA by using Report BBP_MIGRATE_SCEN in SAP SRM.

After running the report, run follow-on Report MMPUR_MIGR_EBAN in SAP S/4HANA. After this step, you can access a former SAP ERP shopping cart in SAP S/4HANA as a requisition in the self-service procurement process you have established in SAP S/4HANA and process this item further. Associated purchase orders in SAP S/4HANA also will have a linkage to the requisition created during the conversion of the shopping cart. Any PO information that wasn’t transmitted to SAP ERP by the time of conversion will be unavailable in the new environment. Errors in processing shopping carts, for example, which failed to create a follow-on PO in SAP ERP, won’t convert without the error being resolved first. These reports don’t convert any of the SAP SRM workflows and customizations surrounding these shopping carts, and there may be manual steps to perform once the conversion is complete to process these shopping carts in SAP S/4HANA. Currently, these migration reports and approaches only apply to shopping carts. Any documents created in SAP SRM such as contracts, purchase orders, or receipts that haven’t been transferred to SAP ERP at the time of conversion won’t migrate automatically to SAP S/4HANA during the conversion. As with all conversions, the best approach is to close out as many open documents as possible prior to the conversion so as to convert the smallest number of open documents possible.

5.4.6 Workflow

SAP S/4HANA offers individual approval workflow apps for various procurement objects. These workflow apps rely on preconfigured release strategy procedures and business workflows. However, SAP S/4HANA also offers a generic workflow inbox that provides a holistic view across all workflow items. This inbox can be accessed in application directly or via a mobile app and filtered/sorted to prioritize workflow items. Individual workflow items can be sorted and worked on in one screen while viewing the queue (see Figure 5.11). The SAP S/4HANA workflow introduces the following improvements from previous SAP ERP versions:
- Execute all tasks in one screen
- Keep work items list while processing single work item
- Mobile approval possible
- Filter and sort list of work items

Figure 5.11 New Workflow Inbox in SAP S/4HANA

5.5 Requirement Processing in SAP S/4HANA Sourcing and Procurement

Requirements Processing (Figure 5.12) refers to the buyer activity of sorting through various requirements in need of adjustments and/or sources of supply. The main thrust in most procurement organizations is to focus requirements-processing activities on the more strategic procurement items and to automate, using intuitive designs, workflows, and catalog content to create touchless, issue-ready purchase orders.

5.5.1 Buyer-Driven and Automated Requirements Processing

Once a requisition is created, depending upon the workflow settings in the system, the requisition either is sent for approval or, if under the workflow thresholds for a given value, can be converted directly to a PO. The requisition then goes into a buyer’s queue for sourcing if it contains a descriptive item or is converted to a PO directly by the buyer or automatically via a batch process if it contains only catalog items. A buyer typically takes the order from here, using one of the following SAP S/4HANA apps (see Figure 5.13) to convert the requisition to a PO:

- Automatic Creation of Purchase Orders from Requisition
- Assign and Process Purchase Requisition
- Create Purchase Order via Purchase Requisition
- Release Reminder Purchase Requisition
- Manage Purchase Requisitions—Professional

Figure 5.13 Purchasing: Requirement Processing

With the Automatic Creation of Purchase Orders from Requisitions app (see Figure 5.14), the buyer can begin converting sourced requisitions en masse to POs.
After selecting various criteria (here, **Per Company Code** and **Per Contract**), the buyer then executes the job to create purchase orders from all the available and completed requisitions matching the chosen criteria.

Traditionally in SAP ERP, a buyer has to run a search using selection criteria, review the list and manually check for sources, assign the supplier, and then move the order into a batch queue. The batch job is then run either at a set interval or manually to create an actual purchase order. The requirements processing area is streamlined in SAP S/4HANA to one screen, with prebuilt search criteria that pull in all requisitions. The options allow the buyer to dynamically change the search criteria; generate proposed sources of supply automatically based on PIRs, source lists, or contracts/agreements; and then enter direct creation of the purchase order once the source of supply has been defined—all from one screen, as shown in Figure 5.15.

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**Figure 5.14** Automatic Creation of Purchase Orders from Requisitions

**Figure 5.15** Requirements Processing Screen in SAP S/4HANA Sourcing and Procurement

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### 5.5.2 Navigation in SAP S/4HANA Sourcing and Procurement: Requirements Processing

Requirements processing in SAP S/4HANA has the following improvements compared to previous versions of SAP ERP:

- Dynamic search and filtering and automatic proposal of search help values
- Ability to change search parameters easily in the same screen
- Automatic proposal of available info records or agreements
- Direct creation of purchase orders

If a buyer wishes to drill into any particular requisition, simply clicking a link takes you into the header of the requisition. Rather than inundating the user with a bunch of tabs and tangential information, the revised screen focuses on the essentials of item, quantity, price, material group, plant, and delivery date. If further information is required, the user can drill further into the line-item levels (see Figure 5.16). Here, **General Information**, **Quantity Date**, **Valuation**, **Account Assignment**, **Source of Supply**, **Status**, **Contact Person**, **Notes**, and **Delivery Address** links move you down the page to the applicable information area without needing to open a new tab.
A buyer also has the option to create an additional purchase requisition in the Requirements Processing app. This allows a buyer to jump from the Requirements Processing app to create a new requisition, and then resume work in the Requirements Processing app seamlessly.

Next, let’s discuss processing purchase orders directly in SAP S/4HANA.

### 5.5.3 Purchase Order Processing

Traditionally, purchase order creation and processing in SAP ERP (see Figure 5.17) involves entering numerous data points in the purchase order form, checking the document, identifying errors and further required data, tracking this missing data down, entering it and then checking again, and finally, when the document shows no further error messages, ordering. Another approach is to convert a requisition or use an existing purchase order as a template. Here too, any errors identified have to be researched and corrected prior to issuing the purchase order.

Purchase order processing in SAP S/4HANA has been updated: there’s now a centralized screen that allows for drilling down into further detail of items sequenced based on data relevance, as well as automatic population of required fields based on the materials, suppliers, and templates selected. Possible field entries are also restricted in SAP S/4HANA during the PO process. This reduces the time spent chasing down errors and entering associated data and ultimately accelerates the timeline from initiation to completion. As Figure 5.18 shows, the Create Purchase Order app in SAP S/4HANA allows the user to focus on the important and mandatory fields in the purchase order while providing tabs for the more detailed areas of the document. The top part of the screen provides the PO header information, the middle shows the items, and the bottom shows the item details.

Additional filter criteria have been added in My Purchasing Document Items, allowing for specifying Purchasing Organization, Document Type, Item Category, Account Assignment Category, Delivery Date, Material, Short Text (item), and Supplier name, as shown in Figure 5.19.
Other feature updates to the PO processing area of SAP S/4HANA Sourcing and Procurement include incoterms, short text change options, and attachments. Incoterms refers to payment, delivery, and other terms that define when the obligation and risk shift from supplier to customer during the transfer of goods/services. Incoterm specifications are now available at both the header and the item level. This means that if one item in a purchase order should require different incoterms than the rest, you can set this at the item level. You can also change the short text on a PO, which was previously not an option.

Attachments to an SAP S/4HANA purchase order can be accessed from all of the purchase order apps in SAP S/4HANA Sourcing and Procurement.

### 5.6 Configuration for Self-Service Procurement

This section outlines general configuration steps required to set up self-service operational procurement processes in SAP S/4HANA Sourcing and Procurement. As discussed early in this chapter, self-service procurement can be used for stock items, consumables, and or external services. For stock items and services, this same baseline configuration for self-service procurement can support these scenarios to a degree. Stock items also require a material master, which is discussed in more detail in Chapter 4 and Chapter 6.

#### 5.6.1 Configuration Steps: Self-Service Procurement Baseline

As with all configuration guides, this section is to be used as a reference to support your particular requirements and project. Prior to beginning configuration, you should always ensure you have researched the latest configuration and version-level guidance online and verified that you have met the requirements to begin configuration. Also, note that traditional workflow, report, interface, conversion, enhancement, and form (WRICEF) objects are beyond the scope of this configuration section and book in general; these are project-specific and typically require some development to realize. For the baseline configuration of the self-service procurement scenario, the steps are as follows in SAP S/4HANA:

1. Create employee data. For a user to access the appropriate areas of the organization structure and system functionality for self-service procurement, you must first create an employee record and assign it in the organization structure. In SAP Human Capital Management (SAP HCM), an employee record is comprised of infotypes, information units used to store specific employee master data. To create an employee, use Transaction PA30. For procurement activities, Infotypes 0001 (organizational assignment) and 0105 (system user name and communication information, such as email and address) are mandatory.

2. Create an assignment (position) for the employee in the organization structure via Transaction PPOMA.

3. Assign a business partner to the position. BP BUP003 is the employee business partner role.

4. Maintain attributes mandatory for procurement activities as per Table 5.2.

<table>
<thead>
<tr>
<th>Mandatory Attributes</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document Type: Document types can be configured in customizing under IMG menu path Materials Management + Purchasing + Purchase Requisition + Define Document Types</td>
<td>BSART</td>
</tr>
<tr>
<td>Company Code</td>
<td>BURKS</td>
</tr>
</tbody>
</table>

*Table 5.2 Mandatory Procurement Activity Attributes*
5.6.2 Configure Catalogs (Optional)

To set up a catalog, you need to configure the web service in order to access the catalog. To create a catalog link (web service), go to Materials Management → Purchasing → Environment Data → Web Services: ID and Description. For typical web service configuration values, see Table 5.3.

<table>
<thead>
<tr>
<th>Sequence Number</th>
<th>Name of Parameter for Web Service</th>
<th>Value of Parameter for Web Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td><a href="https://s1.ariba.com/Buyer/Main/ad/contentPunchin/OCIPunchinDirectAction">https://s1.ariba.com/Buyer/Main/ad/contentPunchin/OCIPunchinDirectAction</a></td>
</tr>
<tr>
<td>20</td>
<td>PunchinId</td>
<td>NAME/USER ID</td>
</tr>
<tr>
<td>30</td>
<td>PunchInPassword</td>
<td>PASSWORD</td>
</tr>
<tr>
<td>40</td>
<td>Realm</td>
<td>APCProduction-T</td>
</tr>
<tr>
<td>50</td>
<td>Full Name</td>
<td>S4 HANA Catalog</td>
</tr>
</tbody>
</table>

Table 5.3 Web Service Configuration Values

SAP S/4HANA now allows for cross-catalog search in the Search bar of the Create Requisitions app without going into each individual catalog. If you plan to use this functionality, there are some setup steps required.

As prerequisites, verify that catalog data is available in OCI 5.0 format and that your catalog suppliers can provide this as a JSON file or through HTTP service. Catalogs and their corresponding webservice IDs, as well as content management services (CMSs; for loading images and attachments), must be set up and configured in the system.

To set up cross-catalog search, complete the following steps:
1. Replicate catalog data and any required material master data to Materials Management staging tables.
2. Index the data for cross-catalog search.
3. Define number ranges for catalog items by entering “O1” as the catalog item number range. Follow IMG menu path Materials Management → Purchasing → Purchase Requisition → Self Service Procurement → Define Number Ranges for Catalog Items.
4. Enter a number range for search items. Follow IMG menu path Materials Management • Purchasing • Purchase Requisition • Self Service Procurement • Define Number Ranges for Search Items. Enter “01” as the attachment key number range for MMPUR_ATT.

5. Maintain a common Currency to enable a price filter on items. Follow IMG menu path Materials Management • Purchasing • Purchase Requisition • Self Service Procurement • Define Settings for Cross Catalog Search as per Figure 5.20.

![Figure 5.20 Cross-Catalog Search Settings and Common Currency](image)

Note that after the data is extracted, if you change this setting to another common currency, you’ll need to reindex and run Program MM_PUR_CTLG_EXT_COM_CUR_UPD.

6. If you’ve enabled catalogs using OCI 4.0, you’ll have to activate the ICF service OCI_CATALOG using Transaction. To do so, first select menu option Service • Host, then select Activate Service. Second, ensure that every node path is set to active in /SAP/BC/REST/SAP/OCI_CATALOG. For more information, check SAP Note 2376996.

7. Maintain additional attributes for catalogs. You can control whether a catalog is visible and whether it is used for OCI 5.0 extraction by following IMG menu path Materials Management • Purchasing • Purchase Requisition • Self Service Procurement • Define Additional Attributes for Product Catalog Categories. Enter a web service and maintain the attributes. Select the Don’t Show checkbox if you don’t wish to display the catalog. Select the OCI Extraction checkbox if you want to import data from this catalog using the catalog data import (see Figure 5.21).

![Figure 5.21 Maintaining Catalog Attributes for Display and OCI Extraction](image)

8. Indexing and embedded search configuration is typically conducted by a technical resource with SAP Basis–level access to the system. Embedded search in SAP S/4HANA Sourcing and Procurement leverages SAP NetWeaver Enterprise Search, a search solution providing unified and secure real-time access to enterprise data and data from within and outside of an organization. SAP NetWeaver Enterprise Search returns data from SAP systems and other search providers and allows direct access to the associated applications and actions. Embedded search is the Enterprise Search component for SAP NetWeaver Application Server (AS) ABAP and serves as the search platform using the SAP HANA engine, connecting via RFC destinations, URLs, and/or repository addresses to outside search providers and data sources. Refer to SAP Note 1164979 and help.sap.com for configuration guidelines. For self-service requisitioning, SAP NetWeaver Enterprise Search includes business templates and indexes via search object connectors to enable search and access of both supplier catalogs and material master data from MM.

9. For search templates, the SAP S/4HANA administrator needs to create one search template for each business connector, which then delivers the result data in a predefined form as per the attributes in the template. These templates are not delivered by default in an SAP S/4HANA environment and require activation on the admin’s part. You can mass-activate search templates using Transaction ESH_COCKPIT. To do so, select Switch to Modeler and go to the software component MM-PUR-REQ. Under this component you will find the templates listed in Table 5.4.
### 5.6.4 Importing Catalog Data and Images

Cross-catalog search is enabled in SAP S/4HANA by importing and syndicating data from catalog items and material masters into a single repository of SAP S/4HANA tables for search, indexing the data, and then leveraging embedded search APIs to drive the item-search queries. For more information on the tables, see package VDM_MM_PUR_CATALOG. As shown in Table 5.5, key tables include:

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM_PUR_CTLG_SRH</td>
<td>Search Results Model (Catalog Item Data)</td>
</tr>
<tr>
<td>MM_PUR_CTLG_ATTCH</td>
<td>Images and Attachments</td>
</tr>
<tr>
<td>MM_PUR_CTLG_ATTRB</td>
<td>Attributes</td>
</tr>
<tr>
<td>MM_PUR_CTLG_CUST_FLD</td>
<td>Customer Fields</td>
</tr>
<tr>
<td>MM_PUR_CTLG_PRC_CON</td>
<td>Converted Price Data (Prices in different exchange rates)</td>
</tr>
<tr>
<td>MM_PUR_CTLG_SRCHTRM</td>
<td>Search Terms</td>
</tr>
</tbody>
</table>

Table 5.4 Search Templates in MM-PUR-REQ

10. Select a search template, then click the Create Connector button and the search object connector will be created.

Figure 5.22 shows the steps involved in preparing data for cross-catalog search.

### Table 5.5 MMPUR_CAT Tables (Cont.)

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMPUR_CAT_ATTHMB</td>
<td>Thumbnail attachment</td>
</tr>
<tr>
<td>MMPUR_CAT_ATHTXT</td>
<td>Attachment text</td>
</tr>
<tr>
<td>MMPUR_CAT_ATTRB</td>
<td>Attributes for catalog items</td>
</tr>
</tbody>
</table>

Figure 5.22 Preparation for Cross-Catalog Search in SAP S/4HANA

Open catalog interface-compliant (OCI) data maintained by catalog providers can be imported as a JSON file or HTTPS webservice, while MM material master data can be extracted using reports. Starting with OCI 5.0, multiple customer fields are supported for import. You can maintain the customer fields in INCLUDE structure MMPUR_CA İnCL_CAT_İTM of table MMPUR_CAT_İTM.

The CMS must be configured to extract and store images in an SAP S/4HANA catalog scenario. This is cross-client configuration and requires appropriate authorization. The content management repository is MMPUR_CAT_CONTENT and the contents are maintained in table MMPUR_CAT_CNTNT. Following these steps to maintain a physical storage path and the HTTPS requirement for loading images:

1. Follow IMG menu path SAP NetWeaver • Knowledge Management • Settings in Knowledge Warehouse System • Content Management Service • Define Content Repositories.
2. In the Content Repository field, select MMPUR_CAT_CONTENT and click Edit.
3. In the Phys. Path field, enter the physical path determined for storing the files in your system landscape, and select the HTTPS requirement in the fields for both the frontend and backend.

4. The ABAP server or other servers hosting images need to be configured in the web dispatcher. The system administrator needs to configure the system in such a way that any URL containing the term imageloader should be redirected to where the images are loaded. For importing OCI 5.0–compliant catalogs via JSOM or a report/webservice approach, you must have the MMPUR_CAT_CONTENT_MGMT role assigned.

### 5.6.5 Import JSON File

To import a file via JSON, follow these steps:

1. Enter Transaction MMPUR_CAT_EXT. A catalog importer screen will appear.
2. Add the catalog service ID or existing catalog web service ID and select Import Action Applicable File. In the Import File/URL field, provide the path of the file to be imported. Select the Import Image checkbox if images are to be imported. In the Image Folder field, enter the path for the folder containing images. Click the Schedule Job button.
3. Define the start time for the load to begin, and execute.

### 5.6.6 Import Catalog via Web Service

To import a catalog via web service, follow these steps:

1. Enter Transaction MMPUR_CAT_EXT. A catalog importer screen will appear.
2. Add the catalog web service ID or existing catalog web service ID and select Import Action Applicable HTTP/HTTPS. Provide the URL, User Name, and Password to be imported. You can also provide a transaction ID and requested page, if you would like to resume a stalled transaction.
3. Select the Import Image checkbox if you want to import images, and provide the folder path to the folder containing the images. If using a proxy server, the MMPUR_CAT_PROXY_INFO BAdI needs to be implemented.
4. Click the Schedule Job button. Define the start time for the load to begin, and execute.
5. Select the Reschedule Delta indicator for activating a delta import. The indicators are described further in Table 5.6.

### Table 5.6 Reschedule Delta Indicators

<table>
<thead>
<tr>
<th>Importing Type</th>
<th>Value of Indicator</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full or initial load</td>
<td>Reschedule Delta: OFF</td>
<td>Use when you’re importing data into a catalog the first time. All catalog items are added to tables.</td>
</tr>
<tr>
<td>Delta load</td>
<td>Reschedule Delta: ON</td>
<td>Use when you want to change data or add additional items to an already imported catalog.</td>
</tr>
</tbody>
</table>

6. Table 5.7 contains some user-exit BAdI options to support meeting requirements outside of the standard content-management capabilities in SAP S/4HANA.

### Table 5.7 Available BAdIs for Influencing Purchasing in SAP S/4HANA Sourcing and Procurement

<table>
<thead>
<tr>
<th>SAP S/4HANA BAdI (Enhancement)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMPUR CATALOG ENRICH DATA</td>
<td>The ENRICH_ITEM_DATA enhancement spot provides access to catalog item data, search terms, attributes, price scales, images, and customer fields.</td>
</tr>
<tr>
<td>MMPUR CATALOGTRANSFER荦</td>
<td>Influence search behavior using this BAdI. Standard search behavior searches more relevant columns first and then organizes these in the results.</td>
</tr>
<tr>
<td>MMPUR CATALOGTRANSFER荦</td>
<td>The MMPUR CATALOG TRANSFER enhancement spot allows items selected in a catalog to be enriched when transferring to the user’s requisition in SAP S/4HANA Sourcing and Procurement.</td>
</tr>
<tr>
<td>MMPUR CAT_PROXY_INFO</td>
<td>You can use the MMPUR CAT_PROXY_INFO enhancement spot to specify proxy server settings to access the Internet.</td>
</tr>
<tr>
<td>MMPUR CAT_CLL_ENRICH</td>
<td>You can use the MMPUR CAT_CLL_ENRICH enhancement spot to transfer additional parameters to a webservice, such as a product catalog or a vendor list.</td>
</tr>
<tr>
<td>BD MMPUR REQ APPR PRIV</td>
<td>You can use the ES MMPUR REQ APPR PRIV enhancement spot to modify the approver data, such as displaying the approver name on the user interface of the My Purchase Requisition app.</td>
</tr>
</tbody>
</table>
5.7 Integration with Cloud Applications

Let’s explore several integration scenarios with cloud applications. First, we’ll examine service purchasing and entry with SAP S/4HANA and SAP Fieldglass. Next, SAP S/4HANA Cloud services procurement integration. Then, integration with the Ariba Network for PO/invoice automation with SAP S/4HANA and SAP S/4HANA Cloud. Finally, we’ll examine SAP SuccessFactors Employee Central integrations.

5.7.1 Service Purchasing and Entry with SAP S/4HANA and SAP Fieldglass

Service purchasing in Figure 5.23 doesn’t refer solely to SAP S/4HANA Sourcing and Procurement functionality in this process. Although the user still has services procurement capabilities similar to those used when purchasing a material in SAP S/4HANA Sourcing and Procurement, there is also SAP Fieldglass integration. SAP Fieldglass is a cloud-based vendor-management system (VMS) used to manage services procurement and external workforce programs. For external service procurement and services supplier management, SAP Fieldglass invoices are integrated as of SAP S/4HANA 1610, and further integration is planned in later releases of SAP S/4HANA.

Figure 5.23 Service Purchasing and Entry

As of SAP S/4HANA 1709, further improvements to the service procurement capabilities within the SAP S/4HANA core include simplified service procurement, with SAP Fiori apps for Service Entry Sheet and Service Confirmation (see Figure 5.24).

Figure 5.24 Ariba Network Integration with SAP S/4HANA Sourcing and Procurement: Services

5.7.2 SAP S/4HANA Cloud: Services Procurement Integration

SAP S/4HANA Cloud is a natural integration candidate for SAP Fieldglass. As shown in Figure 5.25, SAP S/4HANA Cloud leverages best practices integration approaches to integrate and extend SAP S/4HANA Cloud with the Ariba Network and SAP Fieldglass, primarily on the invoicing side for SAP Fieldglass for now and the significant documents in a P2P process for the Ariba Network (PO, confirmation, ship notice, goods receipt, and invoice). Future releases of SAP S/4HANA and SAP S/4HANA Cloud are expected to build on the standard integration of document types for SAP Fieldglass.

Figure 5.25 SAP Fieldglass and SAP Ariba Integration with SAP S/4HANA Cloud for Professional Services

5.7.3 SAP Ariba

For SAP S/4HANA operational procurement integration with SAP Ariba, the main applicable scenario is the natively supported purchase order/invoice integration with the Ariba Network. There are a number of resources available to support you with the install and deployment of this integration for SAP S/4HANA Cloud on-premise.

SAP S/4HANA Integration with the Ariba Network for PO/Invoice Automation

The process flow in Figure 5.26 details the integration elements between SAP S/4HANA and the Ariba Network.
The integration is native within SAP S/4HANA and can be established using guided configuration within SAP Activate or via the SAP Ariba account settings. These best practices are available at https://rapid.sap.com/bp/#/RDS_S4_ARI. The building block to implement for the self-service procurement scenario in SAP S/4HANA is Ariba—Purchase Order to Invoice Integration with Procurement (J82). This building block contains the following:

- Scope-item simulation, with which you can test run the scope to understand where the configuration guide steps will cover your requirements or leave gaps
- Process model BPMN2, providing a business process representation of how the software works, which you can use in process-modeling applications
- Prebuilt test scripts you can use to ensure the system has been integrated as designed
- A process model, a representation of the business process to show how the software works as standard

Once you’ve configured the logon credentials and mappings from SAP S/4HANA to your Ariba Network (J81) subscription, you’ll invite and (in the event that they aren’t already transacting on the network) onboard your suppliers in the Ariba Network to begin transacting in your SAP S/4HANA instance.

SAP S/4HANA Cloud Integration with the Ariba Network for PO/Invoice Automation

As with the SAP S/4HANA integration with the Ariba Network, this integration leverages guided configuration, best practices, and SAP Activate to support the solution depicted in Figure 5.27. For SAP S/4HANA Cloud, the solution approach uses native direct web services for integrating to and from the Ariba Network. The J82 building block materials are available at https://support.sap.com/content/dam/SAAP/SolPack/Library/FactSheets/J82_S4CLD1608_EN_US.htm, including:

- Process model, outlining the process between SAP S/4HANA Cloud and Ariba Network
- Test script, for validation for integration implementation
- Process model BPMN2, providing a business process representation of how the software works, which you can use in process-modeling applications
5.7.4 SAP SuccessFactors

SAP SuccessFactors integration with both SAP S/4HANA and SAP S/4HANA Cloud has a similar integration framework and approach as that for SAP Ariba, based on predefined integration scenarios that you evaluate, activate, and deploy in your environment.

SAP S/4HANA Integration with SAP SuccessFactors Employee Central

SAP S/4HANA integrates with SAP SuccessFactors by leveraging predefined configuration and integration scenarios (see Figure 5.28). An overview of the integration materials is available at http://bit.ly/16410501. This integration is web service-based and can be scheduled as a middleware job.

![Figure 5.28 Integrating SAP S/4HANA with SAP SuccessFactors Employee Central](image)

The manual process entails creating or identifying a cost center first in SAP S/4HANA. This is a manual step. The cost center is then transferred to SAP SuccessFactors and assigned to the employee. The employee and/or organizational data is transferred back to SAP S/4HANA automatically via batch processing. The configuration is available at https://rapid.sap.com/bp/#/RDS_EC_S4. This includes overview documentation, scope documentation, and the following accelerators:

- Sales supplement, an overview of the package and business value
- Customer presentation, slides on the scope of integration

SAP S/4HANA Cloud Integration with SAP SuccessFactors Employee Central

SAP SuccessFactors can also integrate with SAP S/4HANA Cloud using the same approach of best practices, building blocks, and SAP Activate. The required efforts are slightly more varied, and therefore involved, than with the Ariba Network packages. Upon completion of the integration, the employee from SAP SuccessFactors is realized as a business partner (BP) in SAP S/4HANA. Data from SAP SuccessFactors can be used to populate the employee data in SAP S/4HANA, such as the following:

- Basic employee information (person, name, employee)
- Communication information, such as email, phone, and fax
- Payment information with payment method and bank account
- Employee status
- Employment percentage
- Working hours per week
- Job title
- Job information, business unit, division, and department
- Cost center assignment

As with on-premise SAP S/4HANA integrations, from a process standpoint, you first establish or identify the cost center in SAP S/4HANA, then transfer this cost center to SAP SuccessFactors Employee Central and assign an employee, and then transfer the employee record back over to SAP S/4HANA (see Figure 5.29). The transfer processes are automated process steps, whereas the cost center assignment is manual.
Figure 5.29 Integrating SAP S/4HANA Cloud with SAP SuccessFactors Employee Central

More on SAP SuccessFactors Employee Central integration building blocks and integration information is available at https://support.sap.com/content/dam/SAAP/Sol_Pack/Library/FactSheets/JBI_S4HANAX_EN_US.htm, where you’ll find the latest integration information, as well as the following:

- Process diagram, which outlines the integration approach
- Test script, for verification of implementation
- Process model BPMN2

5.8 Summary

Operational procurement has been updated in SAP S/4HANA Sourcing and Procurement, both at the UI level with the SAP Fiori app-based approach for key transactions and views, and in terms of internal catalog emphasis. Although many of the core requisitioning transactions are simplified for the casual user, SAP S/4HANA Sourcing and Procurement retains some of the old favorites for PO creation in the advanced options of the apps to support complex ordering processes created by professional buyers with multiple data points and references. Many of these processes and options are required by direct procurement for their types of purchase orders. The next chapter will dive deeper into automated and direct procurement topics.
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Justin Ashlock has been working with SAP’s procure-to-pay SRM solutions for a decade, and currently leads the SAP team of P2P consultants for North America. He contributed to the SRM chapters for the most recent edition of Discover SAP, published in 2014, and also authored SAP Ariba and SAP Fieldglass: Functionality and Implementation.